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ABSTRACT

The first section of this paper includes a brief review of adult development literature with a focus on life-stages. A study of 325 adults who completed questions about themselves is also reported. Areas of concern for important proportions of the sample are noted. Adult development programming can begin with these data-supported focal points. The second section offers a scheme for reviewing adult development programming. Identified dimensions include: targets of programs (e.g., individual, family); purposes of the programs (e.g., remediation, development); methods of programs (e.g., classes, workshops); sources of programs (e.g., universities, businesses); and contents of programs. The author's focus is on "deliberate psychological education" which anticipates potential problem areas and provides necessary coping skills. The third section discusses a possible response to adult development program needs by a large university with teaching, service, and research missions. This response would emphasize skills important to the functioning of the adult as well as theory and research. In addition to learning to work with data, people, and things, one would learn to work with "self" and to design individual responses to the changing environment. (Author)

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PROGRAMMING FOR ADULT DEVELOPMENT

I. Adult Development
by Jean M. Kummerow

II. A Framework for Viewing Practices
by Bruce D. Sillers

III. A Response by Higher Education
by Thomas J. Hummel

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INTRODUCTION

We've titled our presentation "programming for adult development," and in the past few months as we've added the substance of the presentation to the title we've come to realize the impossibility of our task in such a short paper. To start, then, we need to define some terms and clarify our focus. On balance, our presentation will be a conceptual one rather than a reporting of specific programs in existence. We'll be talking about the knowledge base of adult development (Section I by Jean M. Kummerow), a scheme for looking at programs for adult development (Section II by Bruce D. Sillers), and a possible response from higher education (Section III by Thomas J. Hummel).

First, we're talking about adult development. We view adult development as the study of change and stability through the life span resulting from the interaction between biological processes, environmental presses and the individual. Adults change rather than simply age; adulthood is not just a period of stability followed by a decline. We feel that for any programming effort in adult development a basic knowledge about adult development as well as a data base on adults is a prerequisite.

Second, we're focusing on what has been called "deliberate psychological education" and the "giving away psychology to the people" movements. Education rather than remediation is the goal of our programming efforts; we do not wish to provide "emergency" treatment or remediation, but rather wish to emphasize development. Normal adults change, and they might benefit from programming efforts which help them to understand and anticipate their changes. Thus we're discussing programming in a rather

broad sense as we review a framework for looking at practices.

Third, we are discussing only one possible method (among many) of programming for adult development. Because we represent a large university (the University of Minnesota) with a research, teaching and service mission, our response may be somewhat different from the responses of other organizations both in and out of higher education. We believe, however, that our ideas can be useful to other organizations.

I. ADULT DEVELOPMENT

Jean M. Kummerow

Documentation of the changes that occur in adulthood, i.e., adult development, has been undertaken in many disciplines. Generally, sociologists have looked at the age structure of a society and the internalization of age norms (e.g., Rose, 1968). Biologists have studied the development of the human body over time (e.g., Thompson & Marsh, 1973). Psychologists and social psychologists have studied individual behavior and factors associated with the adjustment of the individual to the cultural environment (e.g., Maas and Kuypers, 1974; Lowenthal, Chiriboga and Associates, 1975). Cognitive-stage theorists have focused on inner processes and how the individual perceives the world, structures experiences, and makes decisions (e.g., Loevinger, 1976; Kohlberg, 1973). Developmental-task theorists look at the tasks or functions that confront individuals as they progress through the life-span (e.g., Havighurst, 1953). Career development theorists study the stages in the career behaviors of individuals (e.g., Super, 1957). Life-stage theorists have noted the phases, periods, stages, life cycles or life-stages during which adults similar in age seem to face common problems,

events, and situations (e.g., Gould, 1972; Levinson et al., 1976). Each focus of inquiry has contributed to the over-all understanding of adult development.

In today's presentation we've chosen to focus on adult life-stages. Several researchers (Gould, 1972; Levinson et al., 1976; Levinson, 1978; Vaillant and McArthur, 1972; Vaillant, 1978) and one journalist (Sheehy, 1976) have suggested several life-stages for adults in their late teens to early fifties. The experiences of and changes in adults are highlighted by these life-stages. The life-stage of Leaving the Family (the late teens and early twenties) centers on the separation from the family, including the reduction of dependence on familial support and authority and the redefinition of one's self as an adult. The life-stage of Provisional Adulthood (early twenties to late twenties) is one in which the person is making initial (and sometimes tentative) commitments to adult roles and responsibilities in both occupational and interpersonal contexts. The Age Thirty Transition life-stage (the late twenties and early thirties) is one in which the focus is on questioning one's self and one's relationships as formed in the preceding life-stage. For example, the question may be asked, "Now that I'm doing what I'm supposed to be doing, is it really what I want to be doing?" The Settling Down life-stage (the early thirties to the late thirties) focuses on the deeper commitments that are made to work, family, and interests. The Mid-Life Transition (late thirties to mid forties) includes the reexamination of the earlier dreams of life, the concern that time is running out in life, the feeling of bodily decline, the reduction of differences between "masculine" and "feminine" personality characteristics, and the increasing concern for

future generations. The Restabilization life-stage (mid-forties to mid-fifties) centers on the return to a steady state and the changes in relationships that occur as one's parents' age and as one's children leave home; readjustments in the marital relationship occur due to these changes. Friends become increasingly important, and there is more self-reflection.

While it is not the purpose here to critique the life-stages as summarized above, several points about the research are necessary to aid in interpreting the life-stages. First, samples in the studies (Gould, 1972; Levinson et al, 1974, 1976; Levinson, 1978; Sheehy, 1976; and Vaillant & McArthur, 1972; Vaillant, 1978) were small and homogeneous (generally white, middle-class, male, and in professional occupations). Second, methodologies were not clearly delineated (e.g., Levinson and Sheehy used biographical interviews, but the rules for content analysis of their interviews were not explained). Third, language in the studies was imprecise and the life-stage characteristics needed further clarification and definition in many cases. Replication of these studies would be difficult.

Nevertheless, even these imprecise studies provide important beginning points and add to the knowledge base of adult development. For our purposes we are less concerned that life-stages occur in a particular sequence or that they occur at particular ages, and more interested in life-stages because they highlight important changes and experiences in adults. (And remember we've said information about adults and their development is crucial to programming efforts.)

One of our members, Jean Kummerow, was concerned about the imprecision of the life-stages research and the lack of a data base on adults. She carried out studies (Kummerow, 1977; Kummerow and Hummel, 1977) to document

adult life-stages and age-group characteristics. These studies were sequential, beginning with interviews of 60 middle-class adults and followed by a questionnaire study of those 60 plus an additional 120 middle-class subjects. The sample consisted of equal numbers of adults in three age groups; those ages 23-27, representing the life-stage of Provisional Adulthood; those ages 29-32, representing the life-stage of Age Thirty Transition; and those ages 34-38, representing the Settling Down life-stage.

While it is not our intent to discuss the results of this research in great detail, several points will be mentioned here because of their implications for program planning. First, the interview data did seem to form into patterns which caused raters to perceive the age groups as different. There was also some evidence of life-stages fitting the age groups under study. Second, questionnaire items also discriminated among age groups. Some of these items seemed to have a linear relationship with age and others a quadratic relationship (a peak or a valley in the middle group, ages 29-32) illustrating that adult development is not simply a gain or loss phenomenon.

In the process of gathering the questionnaire data reported above, information about 325 individuals (ages 18-56) was collected. These subjects completed the 71-item self-report questionnaire entitled "Statements About Adults" (in Kummerow, 1977). They described themselves on each questionnaire item by marking a point on a seven-point scale ranging from strongly agree to strongly disagree. For this presentation we studied this larger data base and selected items on the questionnaire which indicated

particular concerns for "important" proportions of the sample. The selected items do not represent particularly earth-shattering concerns but nevertheless are important areas of adult lives. These items are reported in Table 1. Our focus is on the percentages underlined in the table.

Insert Table 1 here

Of the 325 subjects, 280 (86.1%) indicated a concern about at least one of the chosen items; 90% of the women and 80% of the men expressed concerns. In some areas such as worrying about personal limitations, sex differences are apparent. Efforts to cluster the concerns failed to reveal patterns of concerns. For example, a concern about friendships did not automatically mean a concern about occupation.

For some items in Table 1, relatively small percentages of people identified particular concerns. We look to the medical model for some justification of our concern with small percentages. If 10% of the population developed a raspy voice and felt terrible for over a week as did one of our panel members, an epidemic would be announced and resources would be poured into dealing with it. With concerns such as those presented in Table 1, 10% is also a large number. If these percentages hold with the general population, we are dealing with potentially large groups of adults with similar concerns. Even though these identified concerns look like documented common sense, they can serve as data-supported focal points for adult development programming. The life-stages discussed earlier also point to particular concerns around which programming efforts could form. The next section by Bruce Sillers suggests a framework for those programming efforts.

TABLE I

Areas of Concern for 325 Adults

Content areas	% moderately & strongly agree			% moderately & strongly disagree		
	female	male	overall	female	male	overall
I am satisfied with the variety in my social life.	42.6%	59.0%	49.2%	14.7%	8.9%	12.6%
I am satisfied with how I balance work and leisure.	37.4	48.5	41.8	18.9	8.9	15.1
My friendships seem more transient than I would like.	13.3	12.6	13.0	40.7	37.3	39.5
I would like more close relationships with friends than I now have.	35.3	37.3	36.3	19.5	15.7	17.9
I worry about my own aging.	13.2	6.7	10.8	37.9	39.5	38.5
I frequently worry about my health.	10.0	4.5	8.0	51.1	50.8	50.9
At this point in my life I'm in an occupation I want to be in.	41.3	48.5	44.1	25.9	15.7	21.9
I feel held back from developing my potential in my current occupation.	31.2	25.3	29.0	28.6	41.1	33.7
I wish my parents were more accepting of the way I live and the decisions I've made. (N = 299)	17.6	17.0	17.4	48.9	53.7	50.9
I don't worry a lot about my personal limitations.	44.2	51.5	47.1	19.5	11.2	16.3
I sometimes worry that I'm too settled down--I'm in a rut.	18.4	14.4	16.7	44.3	34.1	39.9
I wish my spouse and I had more time together, just the two of us. (N = 209)	59.2	51.2	56.0	11.2	7.2	9.5
I regret my mistakes in raising my children. (N = 192)	19.8	19.7	19.8	22.3	45.0	30.7

Characteristics of the Sample: N = 325 59% female 41% male

Ages 18-56; 67% between the ages of 23 and 38
Educational Background: 57% had at least a college degree
Marital status: 25% had never married; 54% were in their first marriage
Children: 40% did not have children
Income: 60% had incomes over $15,000
Largest occupational categories: 21% homemakers; 18% educators; 14% managers; 10% clerical workers

II. A FRAMEWORK FOR VIEWING PRACTICES

Bruce D. Sillers

A desire to help adults cope effectively with the problems and events outlined in the preceding section, as well as other reasons we haven't mentioned, could lead one as an educator and/or counselor in a number of different directions. Traditionally, once a person left high school or college he/she was on his/her own until smitten by psychological, social, financial, or health problems of a magnitude that warranted "emergency" treatment. In recent years, however, people have begun to realize that normal adults (and their environments) do change and that they might benefit from programs and activities which would help them function more effectively and avoid draining or debilitating catastrophes. Such programs identify and anticipate potential problem areas and move to prevent them by providing individuals and groups with necessary coping skills. Other programs are designed to enhance the functioning and developmental potential of healthy people--i.e., to promote growth beyond specified problem areas.

In short, we're seeing a parallel movement to the psychological education and developmental programs which exist for young people in school settings. Statements by psychological education proponents seem applicable to current and possible programming for adults. In an introductory statement to a special edition of The Personnel and Guidance Journal, Ivey and Alschuler (1973a) said, "Psychological education involves the counselor's taking initiative in deliberately teaching aspects of mental health to larger groups. Education, rather than remediation, is the goal" (p. 589). They (1973b) went on to state:

> The sheer magnitude of psychosocial problems demands that we revolutionize traditional forms of helping in ways that will

> increase our effectiveness....traditional practices do nothing to cure the pathogenic institutions that cause "mental illness" and create major obstacles to normal development. We can no longer afford the luxury of treating individuals or small groups while ignoring the "sick" institutions that produce the symptoms in people we try to heal--too late to have prevented the symptoms. (p. 591)

The key points in the Ivey and Alschuler statements above are encompassed by a model which Morrill, Oetting, and Hurst (1974) developed to clarify the dimensions of counselor functioning (See Figure 1).

Insert Figure 1 here

Their framework also provides a good starting point for conceptualizing educational programs of a broader nature. We added to their original three major categories and ten items in order to make the framework complete for the purposes of examining adult programming. Our total scheme is represented in Figure 2.

Insert Figure 2 here

Definitions of potentially confusing elements follow (adapted from Morrill, Oetting, & Hurst, 1974):

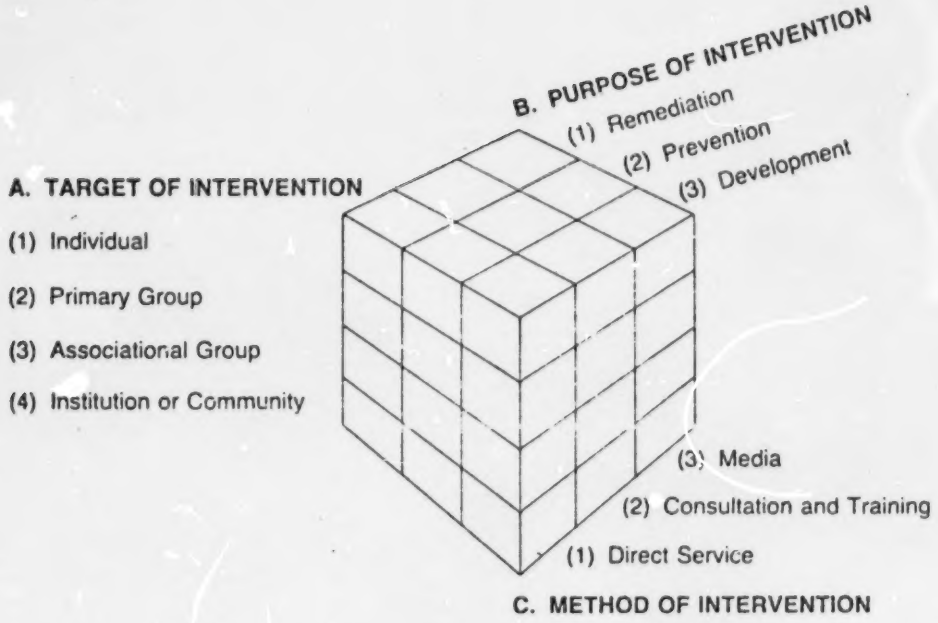
Primary group: intimate, continuing personal associations on a face-to-face basis, determined by the degree of intimacy. Examples are the family, couples, and close friends.

Associational group: more organized groups based on chance or choice associations in which members share a consciousness of similar interests or needs and join together in some organizational way to pursue those interests. Examples are clubs, students in a dormitory, people working in an organization, or members of a church.

Remediation: involves dealing with pain or failure or discrepancy between skills and environmental demands.

Figure 1*

Dimensions of Counseling Interventions



Source: Morrill, W.H., Oetting, E.R., and Hurst, J.C. Dimensions of counselor functioning. P&G, 1974, 52(6), 355(Figure).

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Figure 2

Framework for Adult Development Programming
(Adapted from Morrill, Oetting, and Hurst, 1974)

Dimension A. Targets of Programs

1. Individual
2. Primary group
3. Associational group
4. Institution or community
*5. Professional helpers
*6. Social attitudes, the Zeitgeist

Dimension B. Purposes of Programs

1. Remediation
2. Prevention
3. Development

Dimension C. Methods of Programs

1. Direct service
2. Consultation and training
3. Media

*Modes of delivery
Classes
Tutorials
Workshops
"Groups"
Independent study/work
Counseling/therapy interactions

*Dimension D. Sources of Programs

1. Organizations:
-4 year colleges & universities
-community colleges
-private groups & agencies
-government agencies
-public adult/community schools
-businesses

2. Personnel:
-Trained counselors
-Paraprofessionals
-Educators/teachers/professors
-Clergy
-Entrepeneurs
-People with expertise in some related area

*Dimension E. Contents of Programs

1. Self assessment/stock-taking
2. Decision-making and problem-solving
3. Relationships--with spouses, children, parents, & friends
4. Perceptions of time
5. Biological changes
6. Career behavior
7. Values and value priorities
8. Expectations for & perceptions of self
9. Needs/motivation sources
10. Spirituality
11. Use of leisure time

*Designates those items added for this presentation--not on original cube.

Prevention: concerned with identifying those skills which are needed now or which may be needed in the future. The intent is to anticipate future problems and move to prevent them through skills development.

Development: has the primary focus of promoting positive growth for all, not only for those identified as having existing or potential problems.

Zeitgest: the general intellectual, moral, and cultural state of an era.

Category E--Contents of Programs--was derived from the themes which seemed to occur on a constant or cyclical basis throughout the life stages described in the first section. The list of themes is supported by the data in Table 1; however, we do not view the list as being in its final form. These themes represent real or potential problem areas and possible focal points for adult development programs. Traditionally the most frequent means of dealing with such adult issues (other than ignoring them) have been direct, one-to-one counseling or other services aimed at remediating specific existing problems--usually problems with self, relationships, or career. Because of our concerns, we have ruled these "remediation" efforts to be outside of our thrust in programming and wish to shift attention and resources to other cells in the programming framework. Furthermore, until recently almost all of the prevention and development work has been done by non-professionals in the adult's life, primarily friends and family members (a situtaion which is still desirable, but which could be enhanced by appropriate aids). Increasingly, however, numerous programs are being sponsored by a variety of organizations. An example from the recent past, which continues into the present on a less abundant scale, has been the proliferation of activities in human potential, growth groups, encounters, sensitivity training, etc. All types of organizations listed under D.1. in Figure 2 have sponsored these activities and currently provide programs (both optional and mandatory) in such areas as

communication skills, human relations, assertiveness, values clarification, physical fitness, pre-retirement, use of leisure time, and career planning. Of these, career planning/counseling/development has received the most visible and tangible support from the widest range of individuals and organizations.

Harrison and Entine (1977) cited a 1974 American Institutes for Research (AIR) study of adult career counseling programs. This study found that the programs were sponsored primarily by five types of organizations: four-year colleges and universities (34%), community colleges (20%), private groups and agencies (18%), government agencies (16%), and public adult schools (12%). It was also reported that 32% of the programs surveyed were designed specifically for women, and 16% had a minority enrollment of 30% or greater. None mentioned were specifically designed for men, although the number of male clients was increasing. In addition, there were many more programs for middle-class educated women than for low-income women and female heads of households. It is interesting to note that the programs for middle-income women often focused on expanding personal awareness while those for low-income women were more likely to focus on coping or survival skills.

Unfortunately, for the purposes of this presentation, the AIR study did not distinguish between those programs of a remedial nature and those with preventive and developmental goals. However, one may draw inferences from the data and the apparent trends in delivery methods. The most common format for providing career planning assistance to adults was in the classroom. The second most popular format was the workshop, seminar, or small group meeting. These formats are as likely to appeal to people with preventive and developmental goals as they are to attract persons with serious problems. The reported development of a variety of outreach techniques and home study courses (including television) and materials would also support that assumption. Thus

it seems safe to conclude that the study did find evidence of preventive and developmental programming.

Although the program methods (Part C, Figure 2) have been expanded to include many forms of groups and classes, the focus usually is still on the individual (A. 1., Figure 2). Relatively few existing programs try to enhance adults' development or lives by influencing the people and organizations which surround and impact those adults. Thus, even though the person may be sitting in a class or workshop with other people, he/she as an individual is usually the target, rather than the group as a whole, as would be the case when one attempts to change a primary or associational group (A. 2. & 3, Figure 2). The individual-as-target is in contrast to the focus found in some educational institutions where counselors and psychological educators place an increasing emphasis on creating supportive and growth-producing elements in the human and institutional environments. One obvious reason for this difference is the diverse and inaccessible nature of adults' associations--in contrast to the more circumscribed, controllable environments of younger persons in an educational institution.

Some notable exceptions to the foregoing observations do exist. The number and quality of programs in a variety of areas seem to be increasing: marriage enrichment, family education, work-group team building, organization development interventions in work settings, developing supportive "communities" within church congregations, and adult support groups. All of these are designed to impact on the groups or organizations of which adults are members.

We've pointed out some of the categories in Figure 2 which are being used and some which are not, and we've noted some changes or shifts. Another lack, prominent and unfortunate from our perspective, is the relatively small contribution coming from individuals and organizations with strong, relevant

conceptual bases. These people are often, but not always, found in higher education. In our opinion, too few of the vast resources and energies in higher education are devoted to programming for adult development--either in direct service or through training first-line professionals. With regard to direct service, community and junior colleges have borne a disproportionate share of the load, often with commendable success. Universities and four-year colleges, which are comparatively well-equipped to provide training and information, have been slower to meet the need and challenge. Thus, those people who are called upon to assist adults with their preventive and developmental needs have been left largely to their own resources and imaginations, rather than being able to benefit from solid training or guiding frameworks based on integrations of relevant knowledge and expertise. The result is that while many direct-contact helpers are performing marvelously well, many are also floundering and/or providing inadequate services. (An example of the latter type is the "counselor" who routinely hands out standardized career planning forms in the manner of the much-maligned elementary school worksheets.)

Hopefully this review of schemes for viewing programs and their trends has stimulated some ideas or questions which will aid you in your efforts to improve programming for adult development. In the following section Tom Hummel will discuss conceptual models which may represent directions for higher education programs.

III. A RESPONSE BY HIGHER EDUCATION

Thomas J. Hummel

The last section of this paper deals with the response to adult needs which higher education might make. Actually our comments are more focused than higher education in general and are based primarily on our present attempts at the University of Minnesota, particularly those associated with members of the educational psychology faculty. We believe, however, that our situation is similar to other large institutions with graduate programs and therefore our observations should generalize to certain other institutions.

Let us review some of the characteristics of our institution. We are programmatically oriented. Students typically do not drop in for an occasional course or to acquire a set of skills through a workshop. Rather, courses are taken over time, many in a given order. They are grouped in majors, minors, supporting fields and distribution requirements. They might be prerequisite, required or elected courses. The courses follow some plan and their completion results in a degree. Most of our education is carried out in this fashion, not through "one-shot" workshops of several hours duration.

A characteristic of high quality university coursework is that it attempts to educate the student beyond just "how" to do something. In counseling psychology, for example, we teach not only counseling skills, but counseling theory, research in counseling, professional ethics, philosophy of guidance and the history of the field. We also want individuals to have a good "background;" this means foundational work in psychology. Learning the knowledge base and how to augment it consume a great deal of the

curriculum. Skills by themselves are but one component.

The research mission of our university also interacts with instruction. This is not to say that everything in the instructional program is researched. Opinions are ventured and unevaluated teaching methods are used. But a portion of the content and method of instruction is generated through research. Perhaps of most importance, though, is the effect research has on the educational environment. This environmental effect is hard to assess, but we believe that by doing research and reading about it, there is an effect on the "rules of evidence" employed by individuals and the quality of criticism. Members of the university community are less likely to take things at face value. They require data or documentation.

The last characteristic to be considered here is that of stability. University programs do not appear and disappear in the manner of T.V. situation comedies. There are several obvious reasons for this. Included are the stability of the faculty resulting from the tenure system and the certification role of the institution. This second reason is perhaps less clear than the first. Put quite simply, the responsibilities inherent in granting degrees and recommending licensure, certification, and employment, together with the role of accrediting agencies which attempt to determine that responsibilities are met, create an institutional concern for quality.

Given the above, we propose that our main thrust into adult development programming should reflect the characteristics of our institution, i.e. be stable, programmatic, and research-oriented. A stable, research-oriented program in adult development need not imply traditional modes of delivery such as on campus classroom instruction. Workshops, small groups, conferences, T.V. courses and other forms of instruction could all fit into the programmatic effort.

As adults become more involved in education in general, some will have their needs met through workshops oriented primarily to skill development. This is already the case with parent effectiveness training, communication skills training and assertion training. Some individuals however, may wish to commit themselves to a longer and more systematic programmatic effort.

A primary difference between the program we are proposing and those of a more traditional academic or professional nature would be an emphasis on personal development and effectiveness. This development and effectiveness would not be related solely to a career, but rather towards the broader common life experiences of adults.

Skills important in functioning as an adult would be emphasized but theory and research would not be excluded. Some traditional elements would remain. To create a program such as this which is acceptable as university education is a challenge. On our campus there has been a measure of resistance to offering credit for personal development courses. However, Peter Madison (1976) at the University of Arizona has integrated cognitive offerings and skill building and these efforts need to be expanded. The "theory and practice" aspects of counselor training certainly provide a model. The individual's efforts to gain skill become the laboratory and field work commonly required in support of work in scientific disciplines.

Actually, the change in point of view seems a simple one. In addition to learning to work with "data, people, and things," there is a need for learning to work with self. Education of this kind would have much more of an internal focus.

One can ask the question, "Why all this concern with adult psychological education?" It is certainly true that adolescents have been maturing into adults throughout human existence. It may not be clear that a need exists to supplement the present acculturation processes with those relying on programmatic efforts and a planned curriculum. The need grows out of the fact that our society is changing, and that demands on adults are changing also.

In our complex society adults typically find themselves directly involved in a variety of systems defined by family, occupation, friends, organizational membership, and to a somewhat lesser extent indirectly involved in school and governmental systems. Each system potentially meets the needs of adults and also makes demands on them. The adult is left to manage a rather complex set of affairs, responding to the various demands, trying to decide which to handle first. At times, it seems the adult constructs a "triage" in which the most serious concerns are handled first, some are shelved for later action and others are ignored because it seems hopeless to try to deal with them. On top of this, there is the continuous change in our "Future Shock" society.

By what process is one socialized into the roles of this ever-changing, complex society? Are present socializing agents sufficient to develop individuals with adequate coping skills for the roles played in all of the systems? What socializing agent reaches the individual to deal with the interaction between roles and the multiple demands? The answers to these rhetorical questions are not obvious.

Since each person's life experience is unique, no set of role models or series of advisors will be able to adequately provide the guidance

that is needed for individuals as they face novel situations. The increasing complexity just alluded to, in our opinion, has rendered the traditional socializing agents less effective than we think they should be. This is not to say they are not effective. But our data together with what we read in the professional literature and our knowledge of the popular media leads us to the conclusion that there is room for improvement.

If one accepts the reality of a complex, changing environment and inadequate socializing agents, what is to be done? How can we deal with this complex situation?

Our avenue to a solution must proceed within certain boundaries: 1) we cannot (at least in the foreseeable future) make the environment less complex; 2) we must work within the limitations of humen beings; 3) we cannot teach solutions to specific problems which people will face because we cannot predict with any certainty what those problems will be.

Given these boundary conditions we do have certain assets to work with: 1) even though humans have important limitations, they have the capacity to store large amounts of retrievable information, and 2) there is an emerging science of design.

Let us try to give more meaning to these points. We will try to elaborate the points to directions for programming for adults by imagining the following situation. Suppose a highly expert counselor designs a program in interpersonal communication that is highly effective. The program is designed to teach affective sensitivity and the production of emphatic responses. Assume that through this program the student learns an aspect of communication skills. It would also be important for the

student to learn "how the expert counselor put the program together," i.e. the principles and procedures involved in creating designs that work. The student in everyday life is a designer also, not highly expert, however, and learning how to design programs that work is important. Principles and procedures for creating the designs are needed. In other words the student must become a program developer as well as a program recipient, developing programs to deal with their own lives and which help others.

As the science of design becomes more developed, that part of it which is useful to adults must be taught or "given away." Why only train engineers, architects, educators, etc., in the science of design? Adults in general can find the principles useful in a variety of roles, not just their occupations. The complexity and demands of the non-work aspects of life are everybit as challenging for many people as work related demands. However, we train much more for one aspect than for the other.

A challenge and direction for higher education is to find that subset of design science which is useful to and usable by adults. Ways of teaching it effectively must be designed.

Even if adults knew all there was to know about design, they could not proceed to design their own programs without a knowledge of the world and the kinds of things learned from the physical, biological, behavioral, and social sciences. It is here that the complexity of the environment is encountered. Science tries to deal with that complexity by trying to find the salient facts and relationships that provide for predictability, without inundating our limited capacities with irrelevant detail.

A challenge and direction for higher education is to cull the scientific literature for those generally accepted conclusions which have

been shown to improve prediction and to organize this information to aid in its retrieval. The focus should not be on the cutting edge of research or the controversial, but the "known." This seems an embarrasingly simple task in any one discipline but it is not easy if one looks to anthropology, economics, psychology, communications and other fields. Learning the principles of many fields and applying them in the design of life's activities will not be easy.

With knowledge of design and scientific principles, together with a person's life experiences, an individual is ready for guided practice of the skills learned. Through repetition, confidence is built for the eventual generalization of the behavior. As a brief example, suppose a mother wishes to use the communication patterns in her family as the focus of a practicum experience where her goal is to design a program that would improve family communication. The knowledge base might come from information about group interaction patterns including autocratic and democratic leadership styles, communication skills including the reflecting of content and affect, and information concerning human development with an emphasis on ego development. With this information and the mother's past experience, she would be guided by design principles which would advise her not to accomplish too much at one time. To think of small aspects of the communication system which can be defined, worked on, improved and stabilized. Further, she would be guided to build and connect these stable aspects of communication, working towards eventual improvement of the entire system.

A challenge and direction for higher education is to bring in the personal lives of those it serves. At times, students in vocational

education taking auto mechanics class work on their own cars. At times it seems as if this is as close as we get to making one's own "problems" a legitimate educational concern.

To change higher education so that it is more responsive to the personal lives of those it serves is a mighty task. But given the technical competence and stability of institutions of higher education, they can attack the issues over time. If we take a "learning by doing" approach our direct involvement with adults need not wait. We can start on bits and pieces now. However, we cannot lose sight of the overall picture. We have already witnessed the "fruits" of one technical revolution, the good and the bad. Maybe we can learn to plan more effectively.

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